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CLAIMS

What is claimed is:

- 1. A 1 x 2 planar optical waveguide signal splitter in the form of a Y-branch comprising a trunk and two branches conjoined thereto to form a vertex, said branches diverging from one another, each of said branches having a surface, at least one of said branches being provided with a heating means, said heating means being disposed with respect to said at least one of said branches such that upon activation of said heating means, a spatially non-uniform heat flux will be incident upon said at least one of said branches.
- 2. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein each of said branches further comprises an outer edge and wherein further said spatially non-uniform heat flux will be incident preponderantly on said outer edge of said at least one of said branches.
 - 3. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said vertex is characterized by an angle of 0.05-4°.
 - 4. The 1 \times 2 planar optical waveguide signal splitter of Claim 3 wherein said vertex is characterized by an angle of 0.4-1°.
 - 5. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said heating means is of uniform cross-section.
 - 6. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said heating means is of non-uniform cross-section.
 - 7. The 1 \times 2 planar optical waveguide signal splitter of Claim 1 further comprising a polymeric core.
 - 8. The 1 x 2 planar optical waveguide signal splitter of Claim 7 wherein said polymeric core comprises a polymer selected from the group consisting of polyacrylates, polyfluoroacrylates, polychloroacrylates, polymethacrylates, and polycarbonates.
 - 9. The 1 \times 2 planar optical waveguide signal splitter of Claim 8 wherein the polymer is a polyfluoroacrylate.
- 10. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said heating means is an electrical resistance heater.
 - 11. The 1 \times 2 planar optical waveguide signal splitter of Claim 10 wherein said electrical resistance heater is of non-uniform cross-section.

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12. The 1 x 2 planar optical waveguide signal splitter of Claim 11 wherein said cross-section has a minimum area, said heater being disposed such that the distance between said vertex and said minimum area is a minimum.

13. A method for splitting an optical signal, the method comprising:

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- (a) disposing in the propagation path of a propagating optical signal a 1 x 2 planar optical waveguide signal splitter in the form of a Y-branch comprising a trunk and two branches conjoined thereto to form a vertex said branches diverging from one another, at least one of said branches being provided with a heating means, said heating means being disposed with respect to said at least one of said branches such that upon activation of said heating means, a spatially non-uniform heat flux will be incident upon said at least one of said branches; and
- (b) energizing said heating means to effect the imposition of a spatially non uniform heat-flux upon the surface of said at least one of said branches in order to effect a rise in the temperature of said at least one of said branches an amount sufficient to cause a change in the relative intensity of the propagating optical signal in the two said branches.
- 14. The method of Claim 13 wherein each of said branches further comprises an outer edge and wherein further said spatially non-uniform heat flux is imposed preponderantly on said outer edge of said at least one of said branches.
- 15. The method of Claim 13 wherein said heating means is of non-uniform cross-section.
- 16. The method of Claim 13 wherein said vertex is characterized by an angle of 0.05-4°.
- 17. The method of Claim 16 wherein said vertex is characterized by an angle of 0.4-1°.
 - 18. The method of Claim 13 wherein said rise in temperature is sufficient to effect a digital optical switching function.
 - 19. The method of Claim 13 wherein said rise in temperature is insufficient to effect a digital optical switching function, so that said 1 x 2 planar optical waveguide signal splitter serves as a variable optical attenuator.

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20. The method of Claim 13 wherein said 1 x 2 planar optical waveguide signal splitter further comprises a polymeric core.

- 21. The method of Claim 16 wherein said polymeric core comprises a polymer selected from the group consisting of polyacrylates, polyfluoroacrylates, polymethacrylates, and polycarbonates.
- 22. The method of Claim 21 wherein the polymer is a polyfluoroacrylate.

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- 23. The method of Claim 13 wherein said heating means is an electrical resistance heater.
- 10 24. The method of Claim 23 wherein said electrical resistance heater is of non-uniform cross-section.
 - 25. The method of Claim 23 wherein the highest heat flux is imposed at a minimum distance from said vertex.
 - 26. A digital optical spatial switch comprising the 1 x 2 planar optical waveguide signal splitter of Claim 1.
 - 27. A variable optical attenuator comprising the 1 x 2 planar optical waveguide signal splitter of Claim 1.